HOUGHTON MIFFLIN HARCOURT

February 15, 2011

Mr. Jeff Zaring
State Board of Education Administrator
Indiana Department of Education
Room 225 State House
Indianapolis, IN 46204

Attention: Mr. Jeff Zaring, Administrator

Dear Dr. Bennett and Members of the State Board of Education,

We respectfully request that the State Board of Education reconsider the assessment of Houghton Mifflin Harcourt's secondary math series: *Holt McDougal Algebra 1, Geometry*, and *Algebra 2*, and *Holt McDougal Larson Algebra 1, Geometry*, and *Algebra 2*. Both of these programs were listed as "Unsatisfactory" after review by the Dana Center and Indiana teachers despite conflicting recommendations by the two groups. It is our opinion that the reviews by both groups were subjective and not thorough, and therefore led to inconsistencies and contradictions between the evaluation of individual standards and overall ratings.

To begin, reviewers erroneously deemed Labs and Activities, key elements of the programs, as optional, which was not the intent of the publisher. Labs and Activities are integral to our coverage of the standards, and by not reviewing them the committee missed essential content supporting our coverage of the Standards for Mathematical Practice.

The following are two examples of the subjective overall rating of the textbooks

- For *Holt McDougal Algebra 1*, the reviewer assigned a rating score of 3 or 4 (strong rating) for 42 of the criteria, and 1 or 2 (weak rating) for 27 of the criteria yet the summary rating was a 1, the lowest possible score.
- For *Holt McDougal Larson Algebra 1*, the reviewer assigned a rating score of 3 or 4 (strong rating) for 75 of the criteria, and 1 or 2 (weak rating) for another 75 of the criteria, yet the summary rating again was a 1, the lowest possible score.

Attached please find responses to each title in our series, citing specific ratings and responses where possible. Since there was an inconsistency in the amount of detail we were provided from the reviewers, it was difficult for us to provide a thoughtful response to the rating. For some levels we received comprehensive reviews and comments, while for others, we only received partial documentation.

In regard to the Standards for Mathematical Practice, the Dana Center reviewed only a small portion of the overall program in its review of these Standards. Our coverage of the Standards for Mathematical Practice is integrated throughout the program, as the mathematical practices are not equally applicable to every mathematical concept. For a true understanding of how we integrate and provide complete coverage of these standards, the Dana Center would need to review the entire program.

Thank you for reconsidering these Houghton Mifflin Harcourt instructional materials for adoption by the teachers of Indiana.

Sincerely,

John Sipe
Senior Vice President, National Sales Manager
Houghton Mifflin Harcourt

Response to Review of *Holt McDougal Larson Algebra 2*
for the Indiana Mathematics Adoption

Alignment to the Standards for Mathematical Practice

Summary

While the Dana Center rated *Holt McDougal Larson Algebra 2* as Minimal Evidence, we believe that assessment overlooked several key features of the program that strongly support the Standards for Mathematical Practice. First and foremost, the Indiana teacher panel rated *Holt McDougal Larson Algebra 2* with the highest rating, 4 out of 4, on every one of the Standards for Mathematical Practice. Dana Center reviewers also used their own discretion to exclude content that they consider "separate sections," such as Investigating Algebra Activities and Graphing Calculator Activities. That claim is subjective, as the publishers believe these are key instructional elements within the student text. In addition, Dana Center reviewers only reviewed a small portion of the content provided. All mathematical practices are not equally applicable to different mathematical concepts, so many of their responses may have been unfairly biased by looking at an isolated section of material. Specific details relating to each of the standards are noted below. We believe the sum of these constitutes far more than Minimal Evidence.

1. Make sense of problems and persevere in solving them.

The Dana Center notes that there are "few" open-ended problems in the lessons. Actually, every lesson in the Student Edition contains Writing questions and one or more of the following: Open-Ended, Short Response, Extended Response, and Error Analysis. Mixed Review of Problem Solving features, which appear twice per chapter, offer further opportunities with open-ended questions. In addition, the Teacher Edition includes Key Questions in every lesson to support problem solving and foster classroom discussions. The Dana Center reviewer seems to take little issue with the actual content provided, but instead is concerned with questions of implementation. We feel that it is not the reviewer's role to make assumptions about the quality and styles of teachers; the reviewer should focus on whether or not the program provides sufficient resources for the teachers. In this case, we believe it does. Indiana teachers seemed to agree and rated the program 4 out of 4 for this standard.

2. Reason abstractly and quantitatively.

The Dana Center reviewer notes that lessons contain application problems and that students are given the opportunity to create models, but complains that these are in the Investigating Algebra Activities, "which could be easily skipped." Again, the publisher disagrees. These activities are a core part of the instructional design of the program, and the content contained therein should not be dismissed by the reviewer. In addition, *Holt McDougal Larson Algebra 2* contains lessons dedicated to modeling with linear functions

(2.6), quadratic functions (4.10), polynomial functions (5.9), exponential and power functions (7.7), variation functions (8.1), statistical models (11.5), and trigonometric functions (14.5). The reviewer also claims, "There is not much connection between applications and representations using symbols." On the contrary, the connections between applications and algebraic representations are carefully crafted and visually highlighted throughout the text (e.g., pp. 11, 19, 155, 213, 254, and 356). Attention to reasonableness and the correct use of units is embedded in the instruction and exercises. In many exercises, students must explain and justify the reasoning of their responses. Again, Indiana teachers rated the program 4 out of 4 for this standard.

3. Construct viable arguments and critique the reasoning of others.
The Dana Center reviewer suggests that "problems are mainly focused on arriving at a numerical answer;" however, counterexamples of this abound. As noted above, every exercise set contains Writing questions and one or more of the following: Open-Ended, Short Response, Extended Response, and Error Analysis. Many more exercises require simplifying expressions, making tables, graphing functions, and writing functions. In addition, opportunities to describe, explain, and justify are embedded within many regular exercises. In the end, the reviewer's statement is a gross overgeneralization that does not hold up under closer inspection. The reviewer again discounts identified content that meets this standard by saying "they may be skipped due to infrequency." This again constitutes the reviewer making subjective and unnecessary judgments on the implementation of this program. Indiana teachers, on the other hand, had no issues with the text and rated the program 4 out of 4 for this standard.

4. Model with mathematics
The Dana Center reviewer acknowledges opportunities to create mathematical models but complain again that these are "separate from the section lesson." The publisher reiterates that the Investigating Algebra Activities and Graphing Calculator Activities are essential instructional components and should not be arbitrarily dismissed or considered optional. As noted in the response to Standard 2, there are numerous modeling opportunities in both lessons and activities. Modeling opportunities include hands-on data collection (e.g., pp. 112, 528), graphing calculators (e.g., pp. 121-122, 523-525), algebra tiles (e.g., p. 283), regressions (e.g., p. 308), spreadsheets (e.g., p. 378), paper folding (e.g., p. 437), Venn diagrams (e.g., p. 706) and simulations (e.g., p. 714). Indiana teachers again rated the program 4 out of 4 for this standard.

5. Use appropriate tools strategically.
The Dana Center reviewer notes that graphing calculators are "referenced frequently" and "incorporated into the text," but the reviewer complains about the lack of other tools. Many additional tools are noted in the response to #4 directly above. Indiana teachers added that "a strong technology piece is integrated into example and practice problems," and they subsequently rated the program 4 out of 4 for this standard.

6. Attend to precision.
As noted by the Dana Center reviewer, examples "use proper notation and are precise;" however, the reviewer notes that there are limited opportunities for students to communicate. Students have ample opportunities for written communication in the exercise sets as noted in the response to Standard 3. Further opportunities for discussion are provided in the Teacher Edition. Every lesson contains an Essential Question, Key Questions to foster discussion around the examples, and a Closing the Lesson feature to guide a discussion of important lesson concepts. Indiana teachers again rated the program 4 out of 4 for this standard.

7. Look for and make use of structure.
Holt McDougal Larson Algebra 2 offers ample opportunities for students to develop patterns and analyze structure in algebraic contexts. Patterns are explored with and without technology, especially in the Investigating Algebra Activities (e.g., pp. 112, 121-122, 283, and 336). All of these activities also demonstrate using "specific examples moving to generalization." Complaints that these occur in a "separate section" are unwarranted because these activities are an integral part of the program's instructional philosophy. Indiana teachers again rated the program 4 out of 4 for this standard.

8. Look for and express regularity in repeated reasoning.
As noted in the response to Standard 7, there is an abundance of the use of patterns to develop mathematical concepts and to determine rules. The Draw Conclusions sections in the activities expressly draw out reasoning and generalizations from student observations. Problem Solving Workshop features showcase alternative methods and allow students to apply new strategies in familiar situations (e.g., 272-273 and 460-461). Indiana teachers again rated the program 4 out of 4 for this standard.